

I CLAIM:

1. In a fuel injector for injecting fuel into a combustion chamber (46) of an internal combustion engine, including a pressure booster (3) whose booster piston (4) divides a work chamber (5), acted upon permanently by fuel via a pressure source (1, 2), from a pressure-relievable differential pressure chamber (6), wherein a pressure change in the differential pressure chamber (6) is effected via an actuation of a servo valve (22) whose control chamber (36) can be pressure-relieved via a relief valve (33) and which opens or closes a hydraulic connection (21, 29, 35) of the differential pressure chamber (6) with a return (34), the improvement wherein, for closing the servo valve piston (23, 43), the control chamber (36) can be acted upon by a fuel volume diverted from the differential pressure chamber (6), and its being acted upon by fuel is effected via lines (23.1, 21) that contain throttle restrictions (24, 44), and its pressure relief is effected via a relief valve (33) into a return (32) on the low-pressure side.
2. The fuel injector in accordance with claim 1, wherein the servo valve piston (23) comprises a sealing edge (26) for closing or opening the connection of the differential pressure chamber (6) with the return (34).
3. The fuel injector in accordance with claim 1, wherein the servo valve piston (23, 43) comprises a control edge for controlling the hydraulic connection of the differential pressure chamber (6) with the pressure source (1, 2).
4. The fuel injector in accordance with claim 1, wherein the servo valve piston (23) of the servo valve (22) comprises a through conduit (23.1), by way of which fuel diverted from the differential pressure chamber (6) flows to the control chamber (36) via a first hydraulic chamber (29).

5. The fuel injector in accordance with claim 1, wherein both the control chamber (36) of the servo valve (22) and a first hydraulic chamber (29) are acted upon in parallel with fuel via line portions supplied from the diversion line (21).
6. The fuel injector in accordance with claim 1, wherein the servo valve (22) comprises a second hydraulic chamber (30), which is acted upon via the high-pressure line (2), communicating with the pressure source (1), by fuel that is at high pressure.
7. The fuel injector in accordance with claim 6, wherein the second hydraulic chamber (30) can be closed by means of a sealing seat (31) on the servo valve piston (23, 43), and wherein the sealing seat (31) is embodied as a conical seat, a slide seal (27, 47), or a flat seat (37).
8. The fuel injector in accordance with claim 1, wherein the servo valve piston (23, 43) of the servo valve (22) comprises a seal which seals off the first hydraulic chamber (29) from the return (34) and can be embodied as a conical seat (41) or a flat seat (37).
9. The fuel injector in accordance with claim 8, further comprising a spring applying a spring force to the servo valve piston (23, 43) to reinforce the sealing action at the sealing point.
10. The fuel injector in accordance with claim 1, wherein the servo valve piston (23, 43) is received in a multi-part valve body (28, 28.1) of the servo valve (22).